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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,248	02/01/2002	Yoshihiro Ishikawa	219015US2	8892

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1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

CAI, WAYNE HUU

ART UNIT	PAPER NUMBER
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2681

DATE MAILED: 11/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/060,248

Applicant(s)

ISHIKAWA ET AL.

Examiner

Wayne Cai

Art Unit

2681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/28/05, 10/13/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to Request for Continued Examination (RCE) dated 10/03/2005.

Response to Arguments

1. Applicant's arguments filed 10/03/2005 have been fully considered but they are not persuasive.

The Applicants argues that Raith fails to teach or suggest "receiving a handover history from the mobile station, said handover history identifying origination and destination base stations of previous successful handovers of the mobile station" or "selecting at least a handover destination candidate communication apparatus from among communication apparatuses surrounding said communication apparatus of said communication partner based at least on the received handover history." The Examiner respectfully disagrees with the arguments because Raith in teaches or suggests in column 6, lines 31-38 "frequently traveled routes are stored in a route server connected to the mobile communication network 10...The stored routes are used by the mobile communication network 10 to assist in making handoff decision" (i.e., receiving a handover history from the mobile station, said handover history identifying origination and destination base stations of previous successful handovers of the mobile station.) Raith further discloses in column 7, lines 16-20 that "Once the mobile terminal 20 reaches the selected hand-off position, the mobile communication network 10 instructs the mobile terminal 20 to change to a new control channel in a conventional fashion (block 110)." Raith also teaches or suggests in column 8, lines 14-21 that "In order to

determine the appropriate handoff positions, the mobile communication network 1 should preferably monitor and evaluate any handoffs that occur and correlate the performance of each handoff with the position of the handoff. FIG. 5 illustrates once process for acquiring and storing such information regarding handoff positions.” (i.e., selecting at least a handover destination candidate communication apparatus from among communication apparatuses surrounding said communication apparatus of said communication partner based at least on the received handover history.)

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindsay et al (hereinafter “Lindsay”) (US 2002/0009070 A1) in view of Raith (US – 6,711,408 B1), and in further view of Ida et al (hereinafter “Ida”) (US 2002/0082036 A1).

Regarding claims 1 and 12, Lindsay discloses a handover control method and a communication control apparatus used in a mobile communication system which includes communication apparatuses having functions of base stations, a mobile station and a communication control apparatus which controls connections between said communication apparatuses and said mobile station (figures 2 & 19), wherein said

mobile station switches a communication apparatus of a communication partner to another communication apparatus when a communication quality value between said communication apparatus of said communication partner and said mobile station falls below a first threshold which is better than a limitation value by which communication is available (paragraph 0230, lines 1-6), said handover control method comprising the steps of:

said communication control apparatus:

- said mobile station switching said communication apparatus of said communication partner to said handover destination candidate communication apparatus which is notified by said communication control apparatus when said communication quality value falls below said first threshold (paragraphs 0230-0232).

Lindsay, however, fails to disclose:

- receiving a handover history from the mobile station, said handover history identifying origination and destination base stations of previous successful handovers of the mobile stations;
- selecting at least a handover destination candidate communication apparatus from among communication apparatuses surrounding said communication apparatus of said communication partner based on at least on the received handover history;
- reserving wireless resources of said at least a handover destination candidate communication apparatus which is selected;

- notifying said mobile station of a handover destination candidate communication apparatus for which wireless resources are reserved in said at least a handover destination candidate communication apparatus.

In a similar endeavor, Raith discloses position assisted handoff within a wireless communications network. Raith also discloses:

- receiving a handover history from the mobile station, said handover history identifying origination and destination base stations of previous successful handovers of the mobile stations (col. 6, line 31 – col. 7, line 20; col. 8, lines 14-21);
- selecting at least a handover destination candidate communication apparatus from among communication apparatuses surrounding said communication apparatus of said communication partner based on at least on the received handover history (col. 7, lines 1-20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Raith's invention to arrive at the present invention because by receiving a handover history from the mobile station would assist the handover process more accurate, and efficient.

Furthermore, Ida discloses a mobile communications system and method for controlling transmission power. Ida further discloses:

- reserving wireless resources of said at least a handover destination candidate communication apparatus which is selected (paragraph 0053, lines 16-20);

- notifying said mobile station of a handover destination candidate communication apparatus for which wireless resources are reserved in said at least a handover destination candidate communication apparatus (paragraph 0053).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include reserving wireless resources and notifying the mobile station of a handover destination candidate so that the conversation would not be interrupted and the mobile station know which new base station is selected.

Regarding claim 3, Lindsay, Raith, and Ida disclose all the limitations of claim 1. In addition, Lindsay also teaches said mobile station judging whether said communication quality value falls below said second threshold, and sending a request for selecting said at least a handover destination candidate communication apparatus to said communication control apparatus when said communication quality value falls below said second threshold (paragraphs 0228, and 0230-0231).

Regarding claim 4, Lindsay, Raith, and Ida teach all the limitations of claim 1. Ida further teaches the steps of:

- when said communication control apparatus selects a plurality of handover destination candidate communication apparatuses (paragraph 0059), said communication control apparatus determining priorities of said plurality of handover destination candidate communication apparatuses (paragraph 0058);

- said communication control apparatus notifying said mobile station of handover destination candidate communication apparatuses in said plurality of handover destination candidate communication apparatuses for which wireless resources are reserved (paragraph 0053).

Even though Ida does not explicitly teach that the communication control apparatus determines priorities, eventually what the system does is to identify the mobile location and based on the signal strength, rank priorities of handover destination candidate communication apparatuses. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to rank priorities of handover destination candidate communication apparatuses so that one best candidate can be selected.

Regarding claims 5, Lindsay, Raith, and Ida disclose all the limitations of claim

1. Raith also discloses the handover method comprising the steps of:

- said mobile station sending mobile station information to said communication control apparatus, said mobile station information including a history of movement of said mobile station and received powers of perch channels from communication apparatuses surrounding said communication apparatus of said communication partner (col. 6, lines 31-38);
- said communication control apparatus having a history of mobile station information, said history of mobile station information including a history of movement of said mobile station and received powers of perch

channels from communication apparatuses surrounding said communication apparatus of said communication partner for past successful handover (col. 6, lines 38-50).

- said communication control apparatus selecting said at least a handover destination candidate communication apparatus according to said mobile station information sent from said mobile station and said history of mobile station information for past successful handover (col. 6, lines 50-54).

Regarding claim 6, Lindsay, Raith, and Ida disclose all the limitations of claim 5. Ida also teaches the communication control apparatus selects a plurality of handover destination candidate communication apparatuses (paragraphs 0058-0059).

Raith further discloses the communication control apparatus determining priorities of said plurality of handover destination candidate communication apparatuses according said mobile station information sent from said mobile station and said history of mobile station information for past successful handover (col. 6, lines 31-50).

Regarding claim 7, Lindsay, Raith, and Ida disclose all the limitations of claim 5. Raith further discloses the steps of: said communication control apparatus holding said history of mobile station information for all communication apparatuses controlled by said communication control apparatus (col. 6, lines 31-36).

Regarding claim 8, Lindsay, Raith, and Ida disclose all the limitations of claim 5. Lindsay further teaches the steps of: said communication control apparatus holding said history of mobile station information by each combination of a communication apparatus

of handover origination and a communication apparatus of handover destination (paragraph 0234, lines 1-6).

Regarding claims 9, Lindsay, Raith, and Ida teach all the limitations of claim 8. Raith also discloses the handover control method comprising the steps of: said communication control apparatus selecting a communication apparatus of handover destination corresponding to history data in said history of mobile station information in which a correlation value between said history data and said mobile station information sent from said mobile station is equal to or larger than a predetermined value (col. 13, lines 16-22).

In general, the communication control apparatus handovers to another communication apparatus as soon as one of the neighboring communication apparatuses is considered better than the serving communication apparatus. Therefore, based on the history data, the value of the history data and mobile station information has to be equal or larger.

Regarding claim 10, Lindsay, Raith, and Ida, disclose all the limitations of claim 9. Ida and Raith both teach the handover control method comprising the steps of: when said communication control apparatus selects a plurality of handover destination candidate communication apparatuses (Ida, paragraph 0059), said communication control apparatus determining priorities of said plurality of handover destination candidate communication apparatuses according to said correlation value (Raith, column 13, lines 16-22).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne Cai whose telephone number is (571) 272-7798. The examiner can normally be reached on Monday-Friday; 9:00-6:00; alternating Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Wayne Cai
Examiner
Art Unit 2681



ERIKA A. GARY
PRIMARY EXAMINER